

CLAIMS

What is claimed is:

1. An article purging and inflating apparatus comprising:
5 a four way valve; a gas input assembly communicatively connected to the valve; a vacuum generator communicatively connected to the valve; and an article interface assembly communicatively connected to the valve.
2. The article purging and inflating apparatus of claim 1 wherein the
10 apparatus is for purging a tire of gases and moisture and for inflating the tire with dry gases.
3. The article purging and inflating apparatus of claim 2, wherein four
15 tires are purged and inflated simultaneously.
4. The article purging and inflating apparatus of claim 1, wherein the
four way valve has an inlet port, two outlet ports, and two exhaust ports.
5. The article purging and inflating apparatus of claim 4, wherein the
20 gas input assembly is communicatively connected to the inlet port, the article interface assembly is communicatively connected to an outlet port, and the vacuum generator is communicatively connected to an outlet port and to an exhaust port.

6. The article purging and inflating apparatus of claim 1, wherein the gas inlet assembly is adapted for connection to a source of pressurized gas, the pressurized gas being selected from the group of gases consisting of pressurized air, Nitrogen, Argon, and Sodium Hexafluoride.

7. The article purging and inflating apparatus of claim 6, wherein the gas inlet assembly includes an inlet connector adapted for connection to the source of pressurized gas and a gas dryer disposed between the inlet connector and the valve.

8. The article purging and inflating apparatus of claim 7, wherein the gas dryer is a desiccant cartridge type dryer.

9. The article purging and inflating apparatus of claim 7, wherein the gas inlet assembly further includes a pressure regulator disposed between the inlet connector and the gas dryer.

10. The article purging and inflating apparatus of claim 9, wherein the gas inlet assembly further includes a pressure indicator communicatively connected to the pressure regulator.

11. The article purging and inflating apparatus of claim 7, wherein the gas inlet assembly further includes a filter disposed between the gas dryer and the valve.

5 12. The article purging and inflating apparatus of claim 7, wherein the gas inlet assembly further comprises a pressure regulator disposed between the inlet connector and the gas dryer, a pressure indicator communicatively connected to the pressure regulator, and a filter disposed between the gas dryer and the valve.

10 13. The article purging and inflating apparatus of claim 1, wherein the vacuum generator is a venturi type device.

14. The article purging and inflating apparatus of claim 13, wherein the vacuum generator has a pressure inlet port connected to the valve, an exhaust port
15 connected to the atmosphere, and a venturi port connected to the valve.

15. The article purging and inflating apparatus of claim 13, further comprising a muffler communicatively connected to the vacuum generator.

20 16. The article purging and inflating apparatus of claim 13, further comprising a vacuum indicator gauge communicatively connected to the vacuum generator.

17. The article purging and inflating apparatus of claim 1, wherein the article interface assembly comprises a manifold connected to the valve, the manifold having a plurality of connectors, each being adapted to connect to at least one connection hose for connection to a tire.

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18. The article purging and inflating apparatus of claim 17, wherein the article interface assembly further comprises a pressure indicator communicatively connected to the manifold.

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19. A tire purging and inflating apparatus for removing moisture from at least four tires and inflating the tires with dry gas, comprising:

(a) a four way valve, the valve having an inlet port, two outlet ports and two exhaust ports;

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(b) a gas input assembly communicatively connected to the inlet port of the valve, the gas input assembly including:

(i) an inlet connector adapted for connection to the source of pressurized gas,

(ii) a desiccant canister gas dryer disposed between the inlet connector and the valve, and

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(iii) a pressure regulator disposed between the inlet connector and the gas dryer;

(c) a venturi type pressurized gas vacuum generator communicatively connected to the valve, the vacuum generator having a pressure port connected to

an outlet port of the valve, an exhaust port connected to the atmosphere, and a venturi port connected to an exhaust port of the valve; and

- (d) an article interface assembly communicatively connected to the valve, the article interface assembly including a manifold connected to an outlet port of the valve, the manifold having at least three connectors each being adapted to connect to at least one connection hose for connection to a tire.

20. A method of purging and inflating an article, comprising the steps of:

- (a) establishing fluid communication between an article and a valve;
- (b) establishing a pressurized fluid communication between the valve and a source of pressurized gas;
- (c) establishing a fluid connection between the valve and a vacuum generator whereby pressurized gas flows through the vacuum generator to the atmosphere and fluid in the article flows through the vacuum generator to the atmosphere; and
- (d) establishing a fluid connection via the valve whereby pressurized gas flows to the article.